

66660 222066

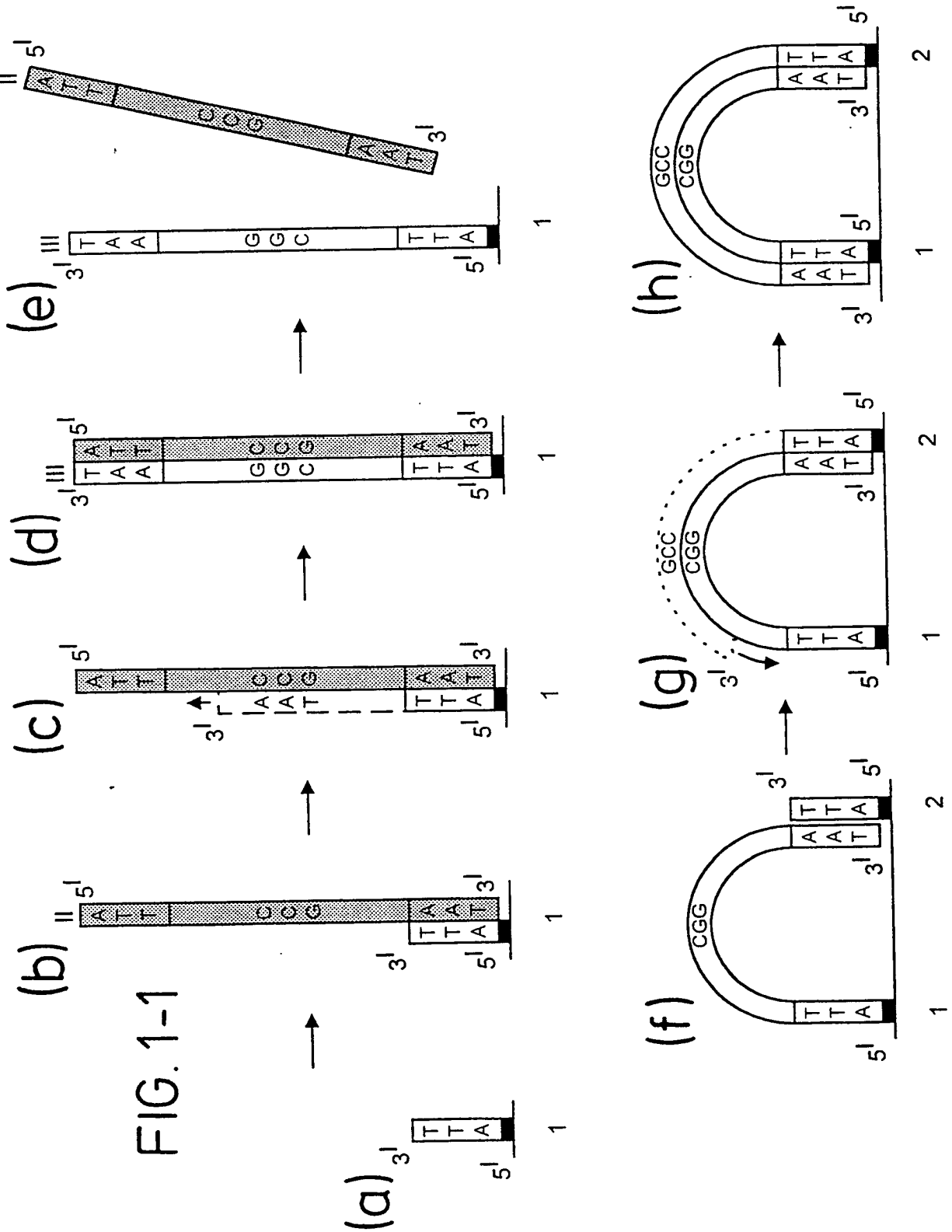
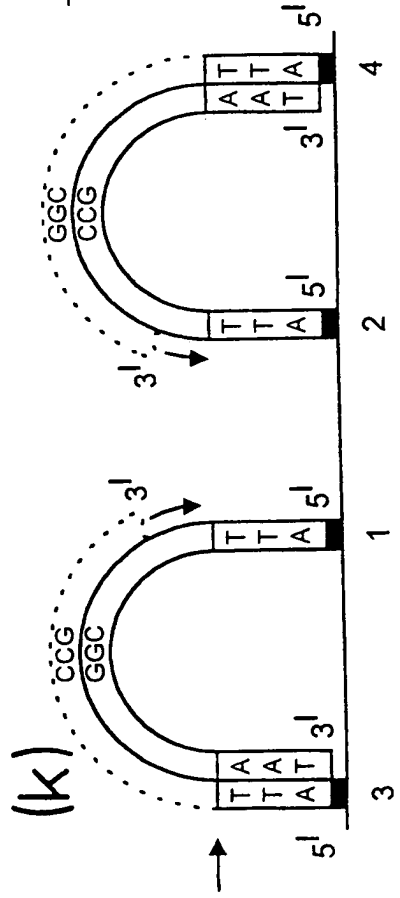
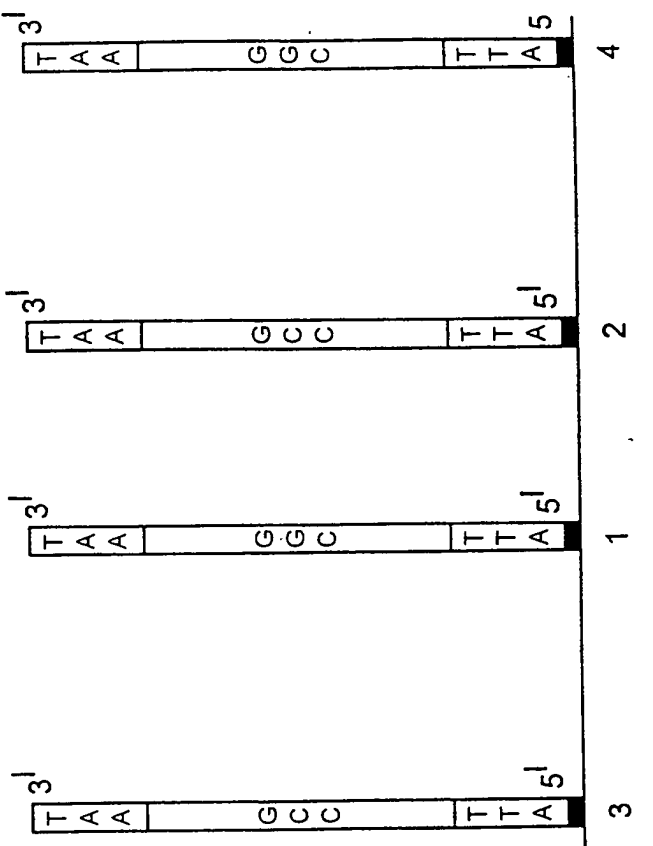
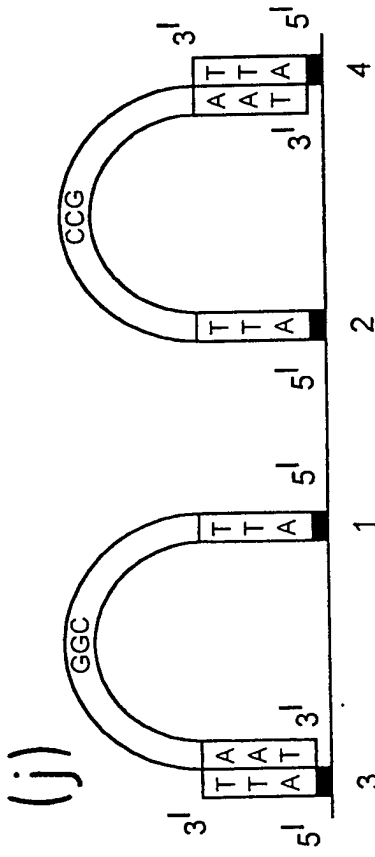
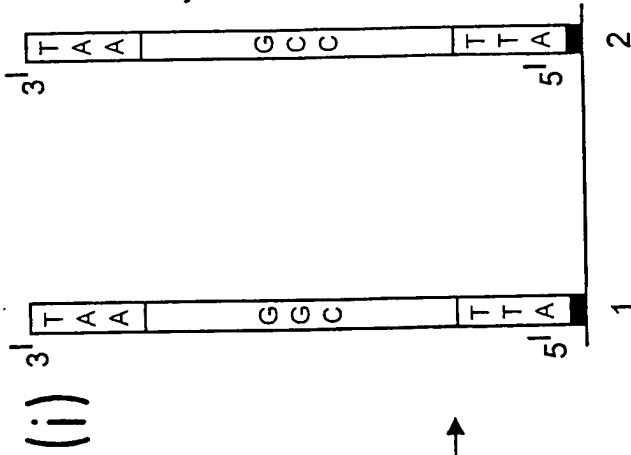


FIG. 1-1

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FIG. 1-2



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FIG. 4a

Colony generation on tubes functionalised with oligonucleotide p57 (control). Results of visualisation of fluorescent microspheres. Hybridisation with probe detects 0.10 fmol/tube.

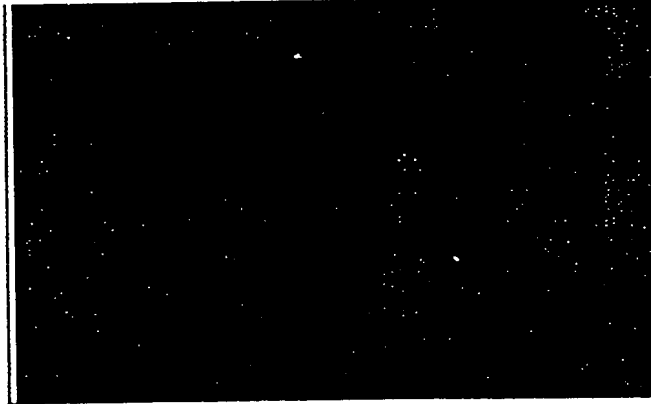
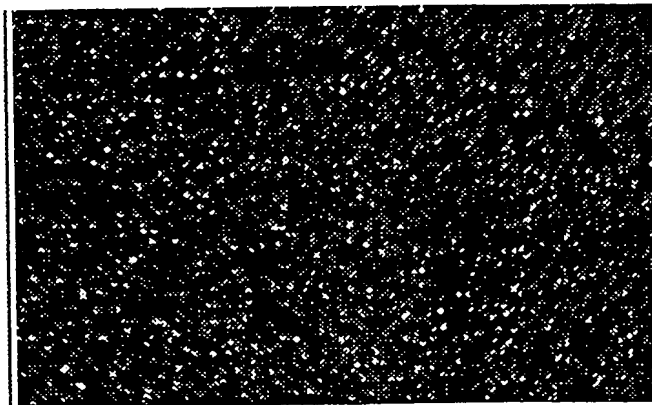


FIG. 4b

Colony generation on tubes functionalised with oligonucleotide p58. Results of visualisation of fluorescent microspheres. Hybridisation with probe detects 6.2 fmol/tube



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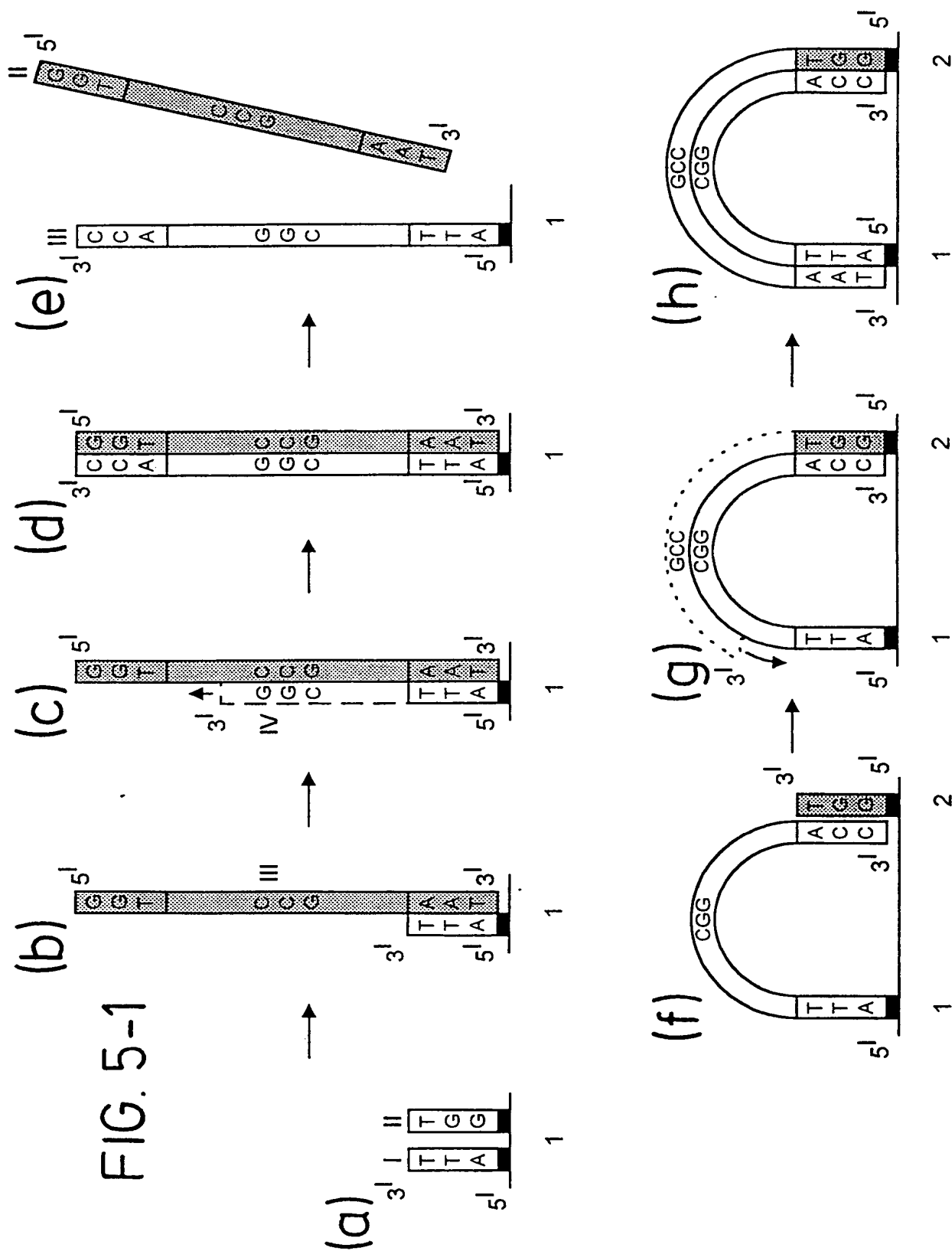
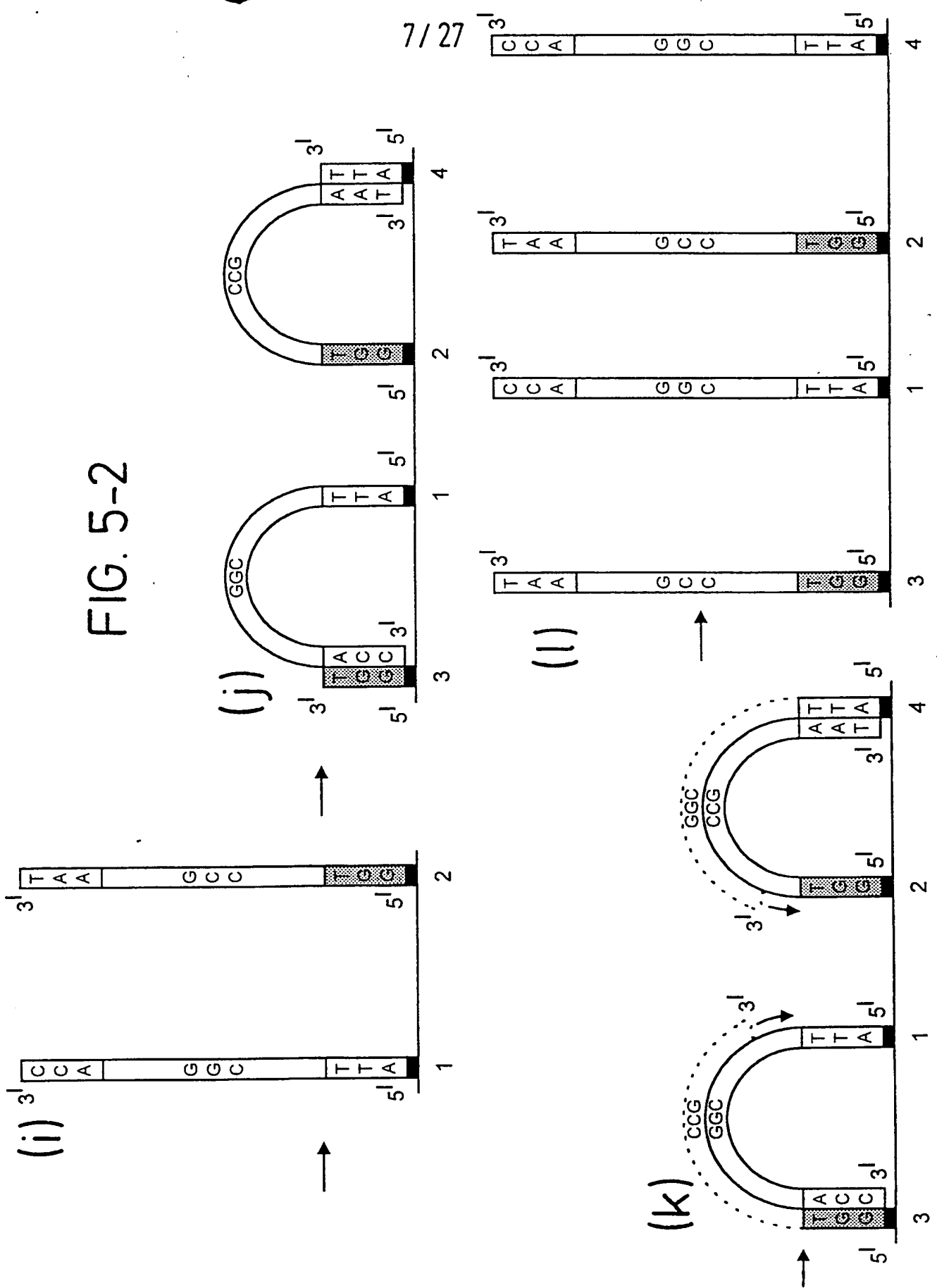


FIG. 5-1

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FIG. 6(a)

DNA amplification - detection of colonies with DNA intercalating dyes

i) control



ii) with template

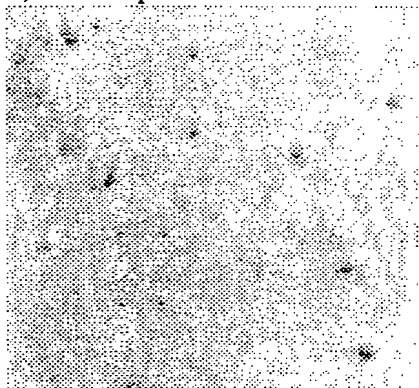
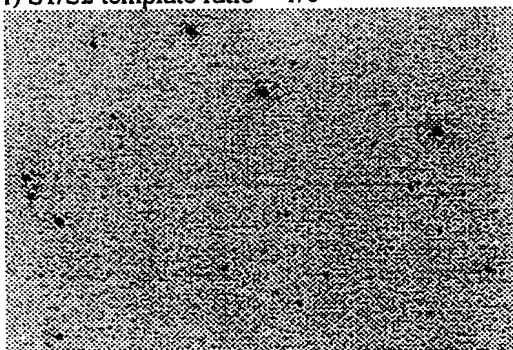


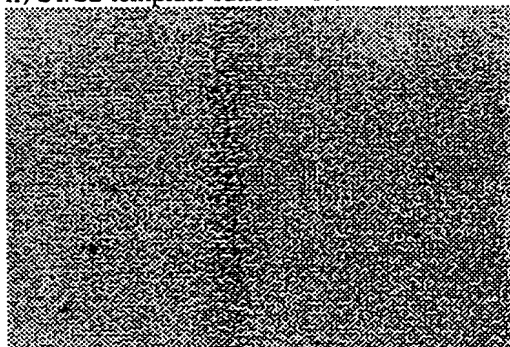
FIG. 6(b)

DNA amplification; detection of colonies by specific probe hybridisation

i) S1/S2 template ratio = 1/0



ii) S1/S2 template ratio = 1/10



iii) S1/S2 template ratio = 0/1



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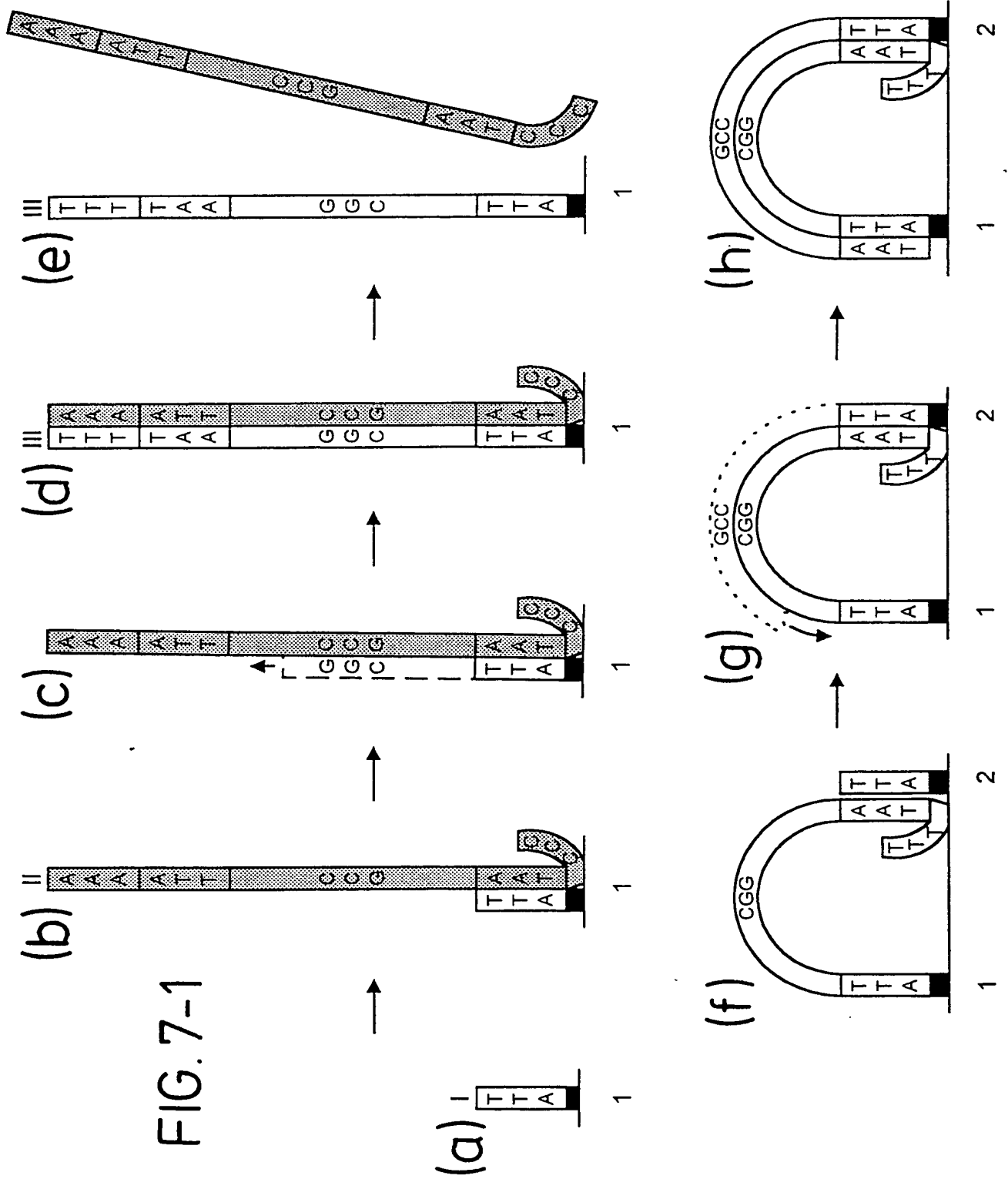
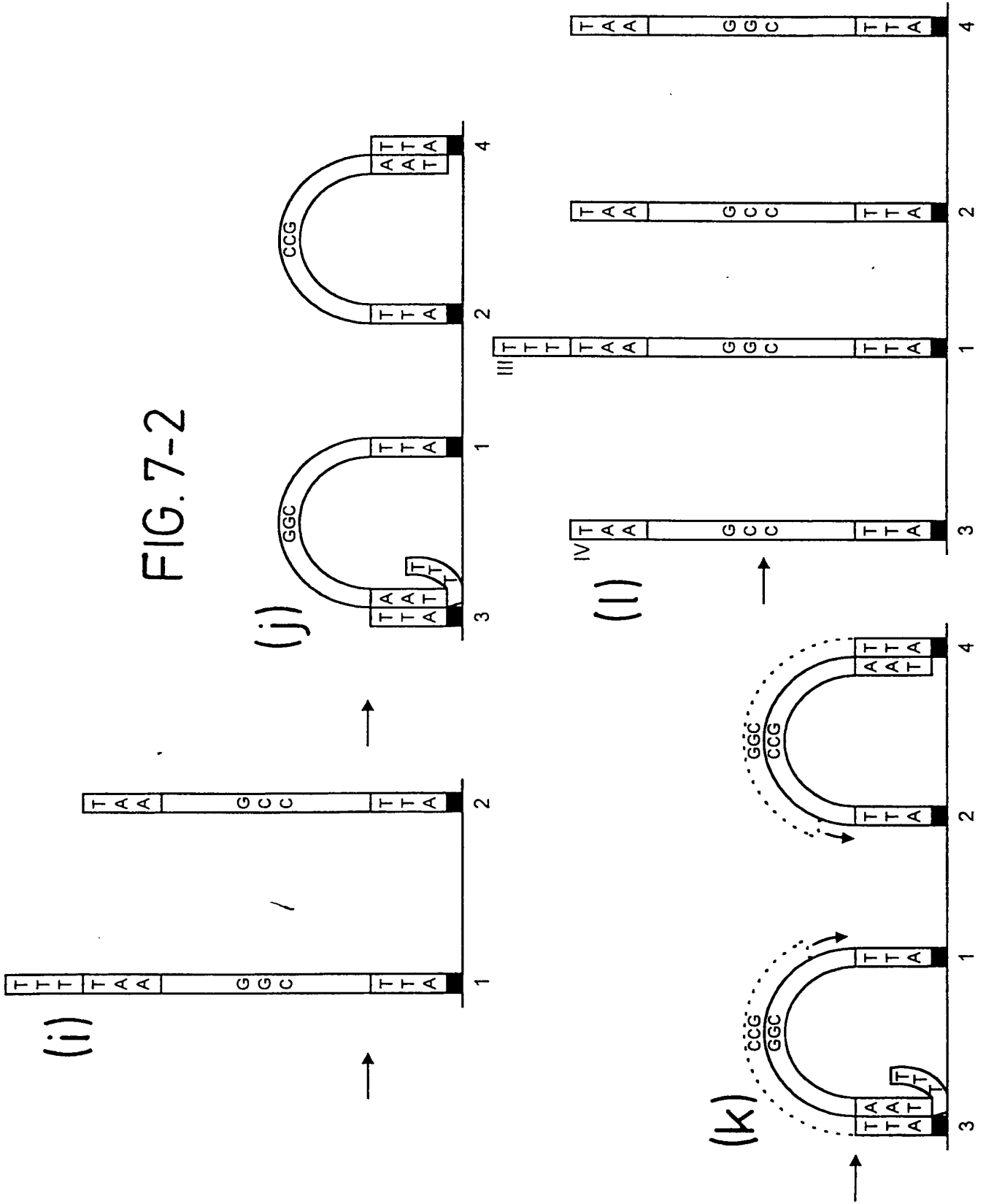


FIG. 7-1

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55650" 4267160

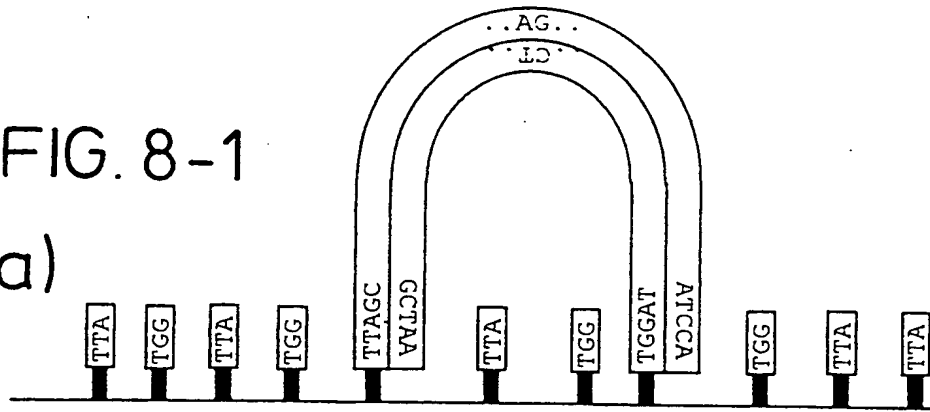
FIG. 7-2



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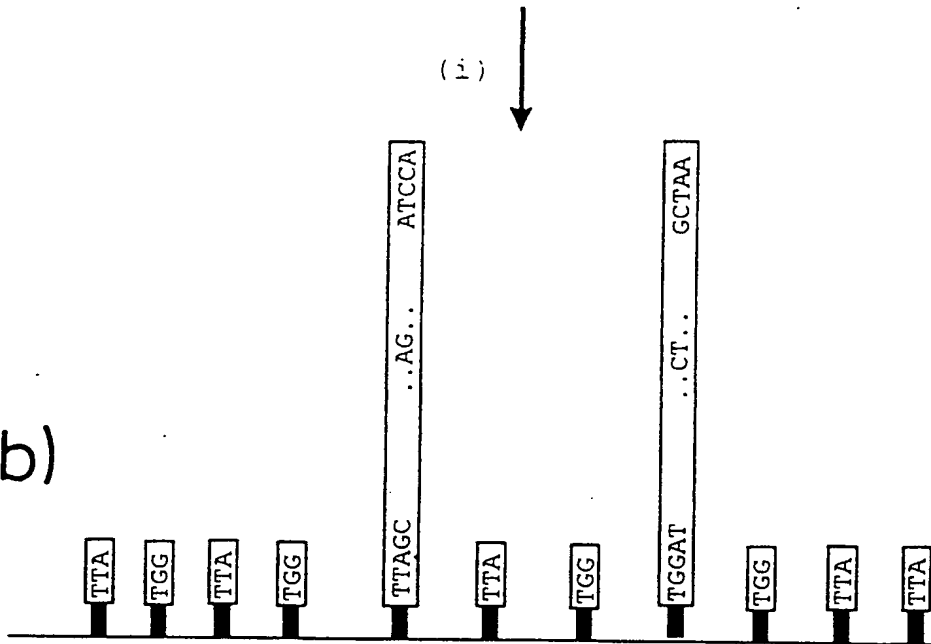
FIG. 8-1

(a)



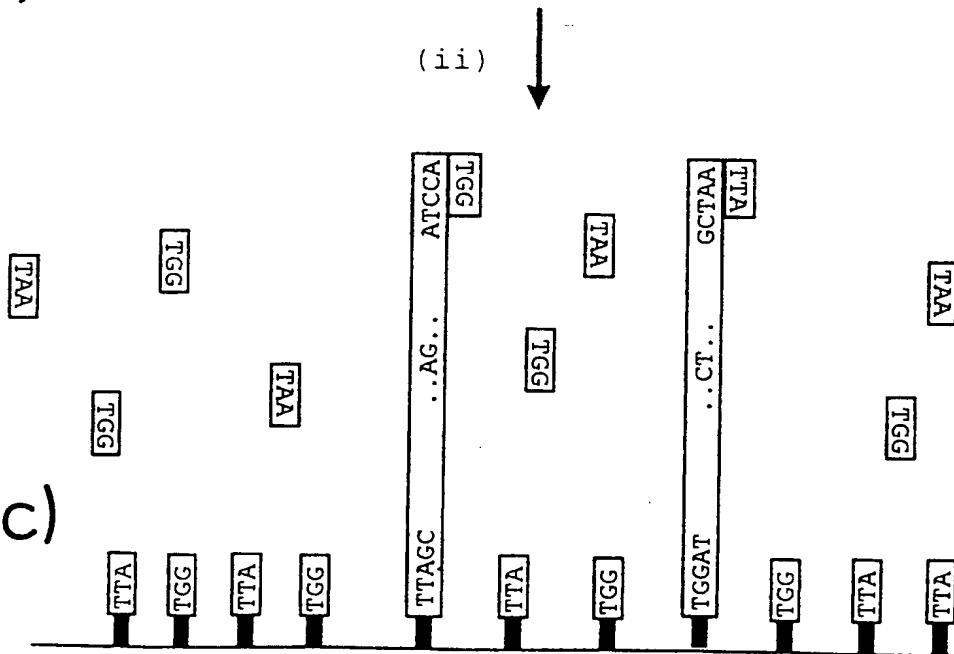
(i)

(b)



(ii)

(c)

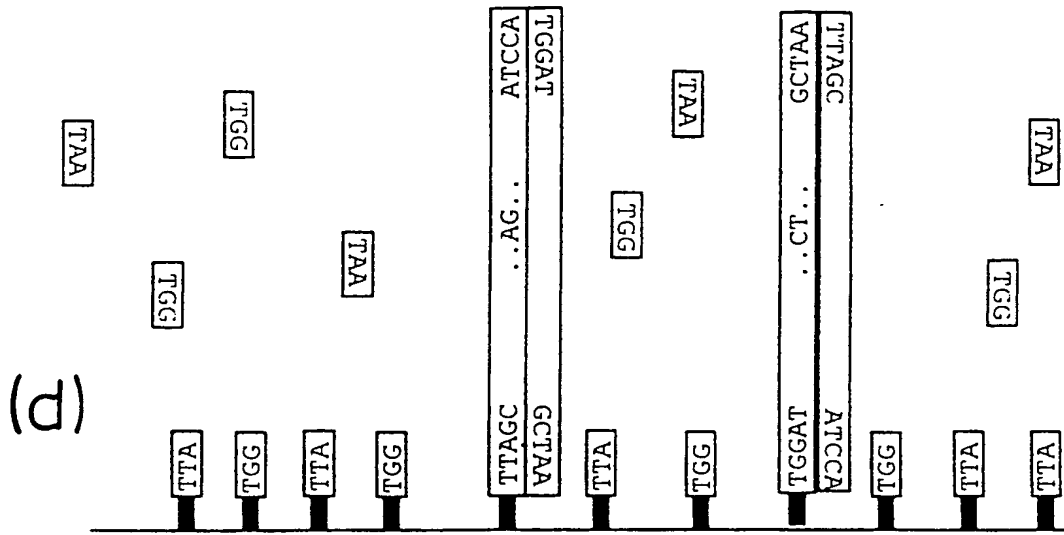


66666" 2422466

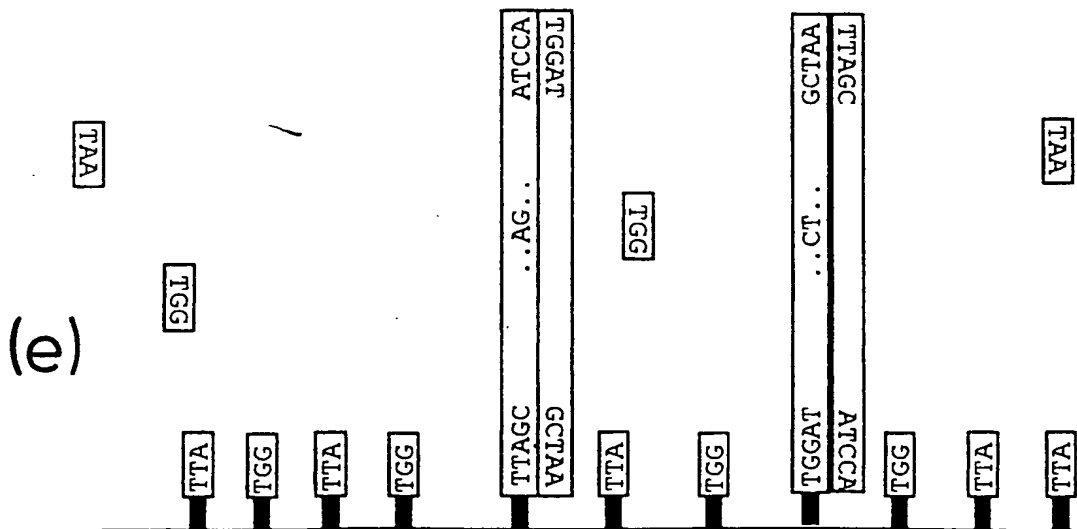
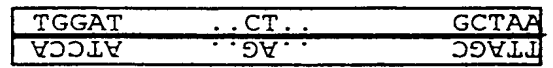
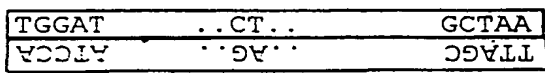
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(iii)

FIG. 8-2



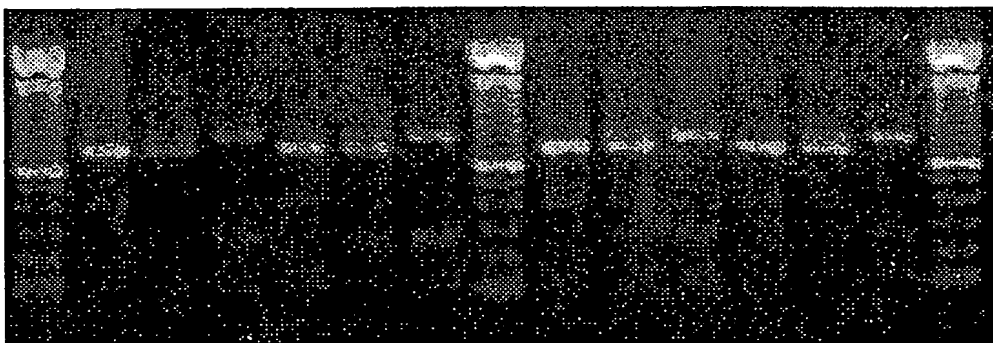
(iv)



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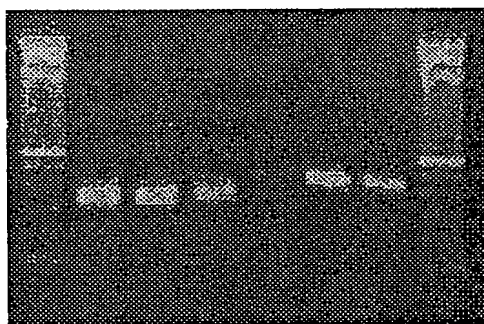
FIG. 9

A)



std. A1 A1,2 A2 B1 B1,2 B2 std C1 C1,2 C2 D1 D1,2 D2 std

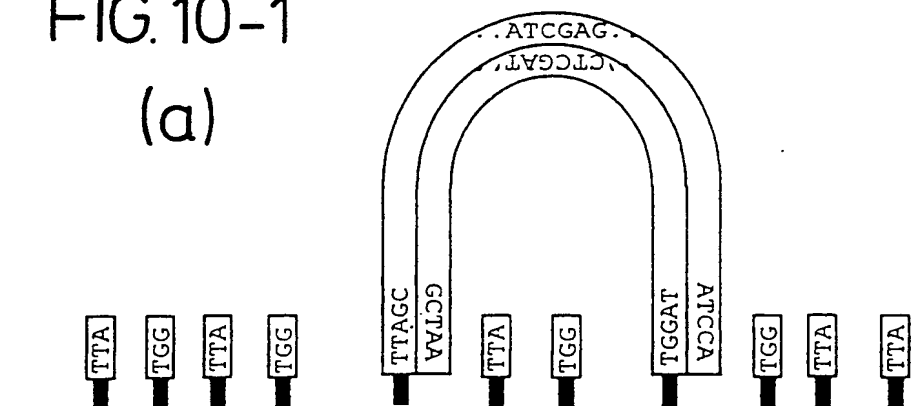
B)



std. E1 E1,2 E2 F1 F1,2 F2 std

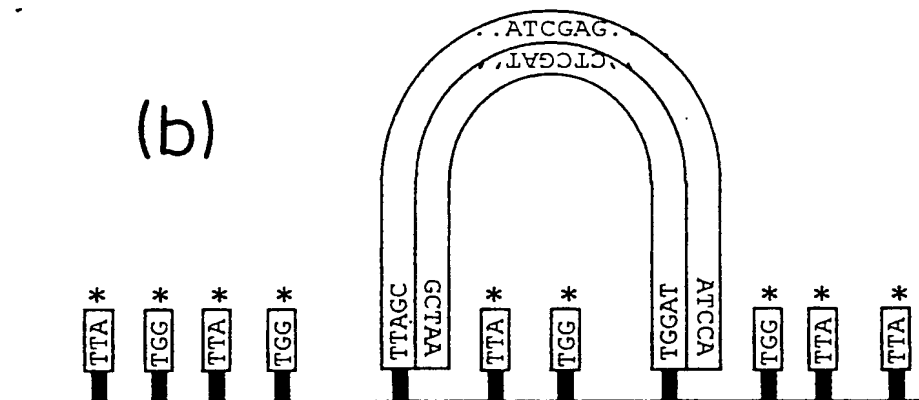
660660" / 2600000

FIG. 10-1
(a)



(i)
↓

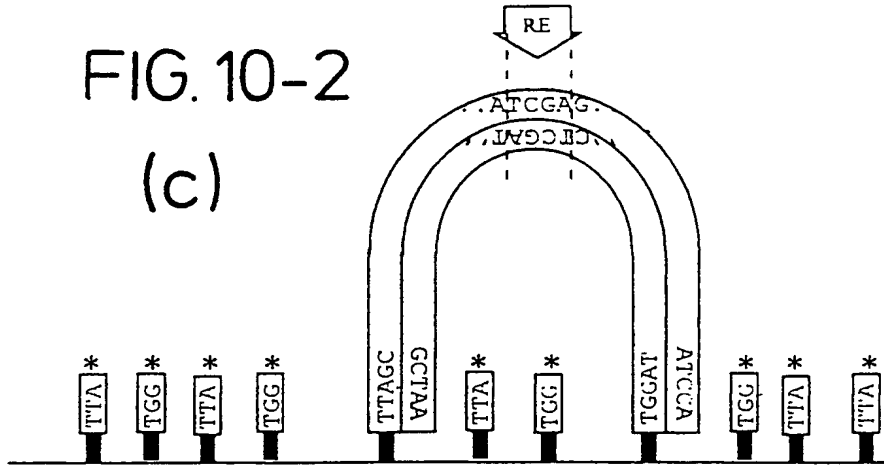
(b)



6000022277

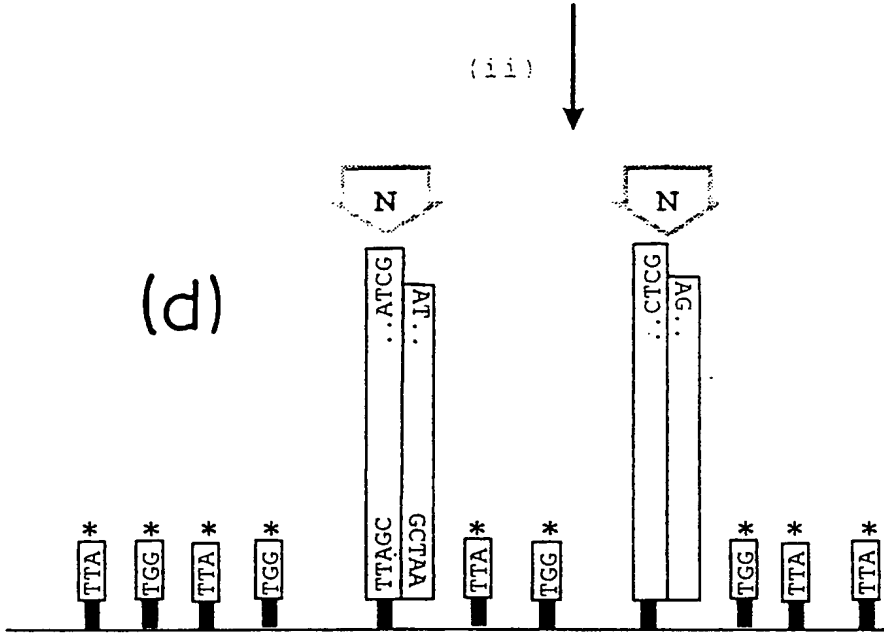
FIG. 10-2

(c)



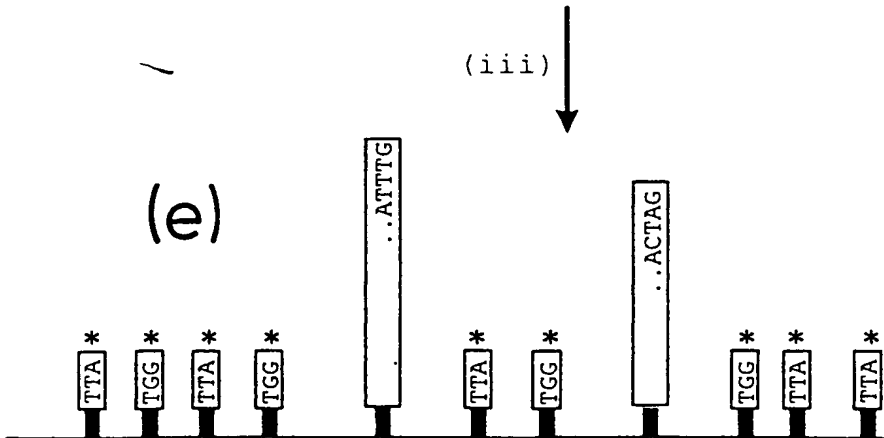
(ii)

(d)



(iii)

(e)

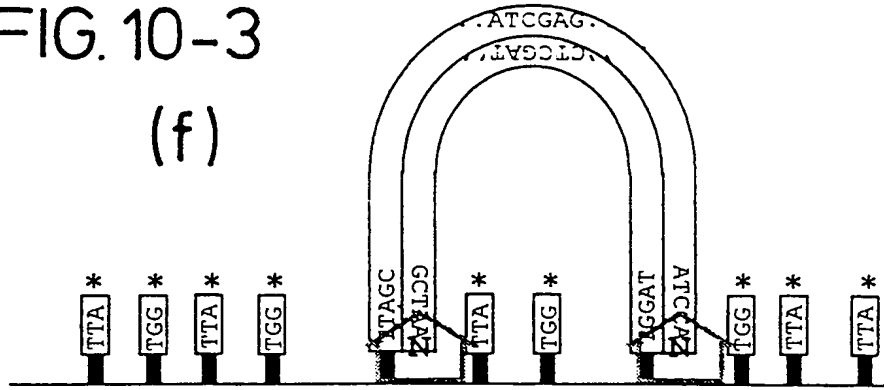


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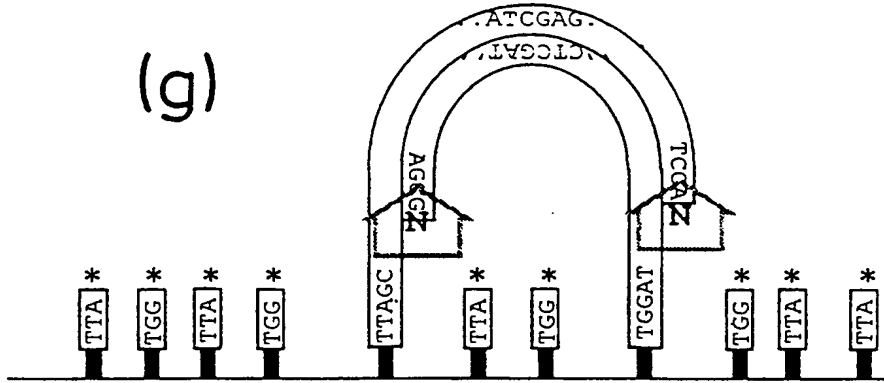
FIG. 10-3

(f)



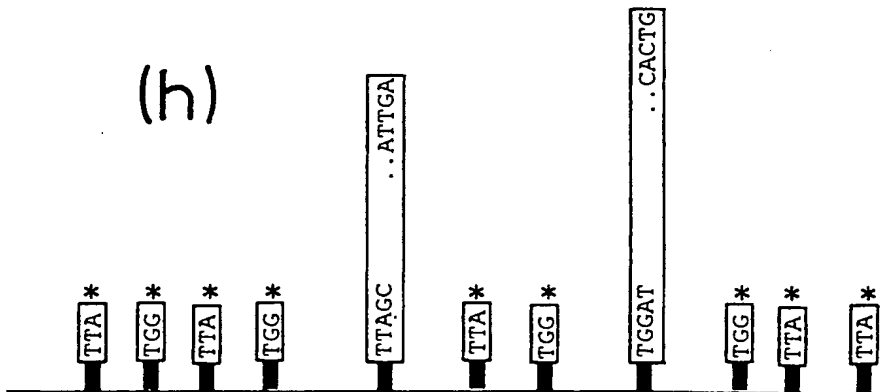
(iv) ↓

(g)

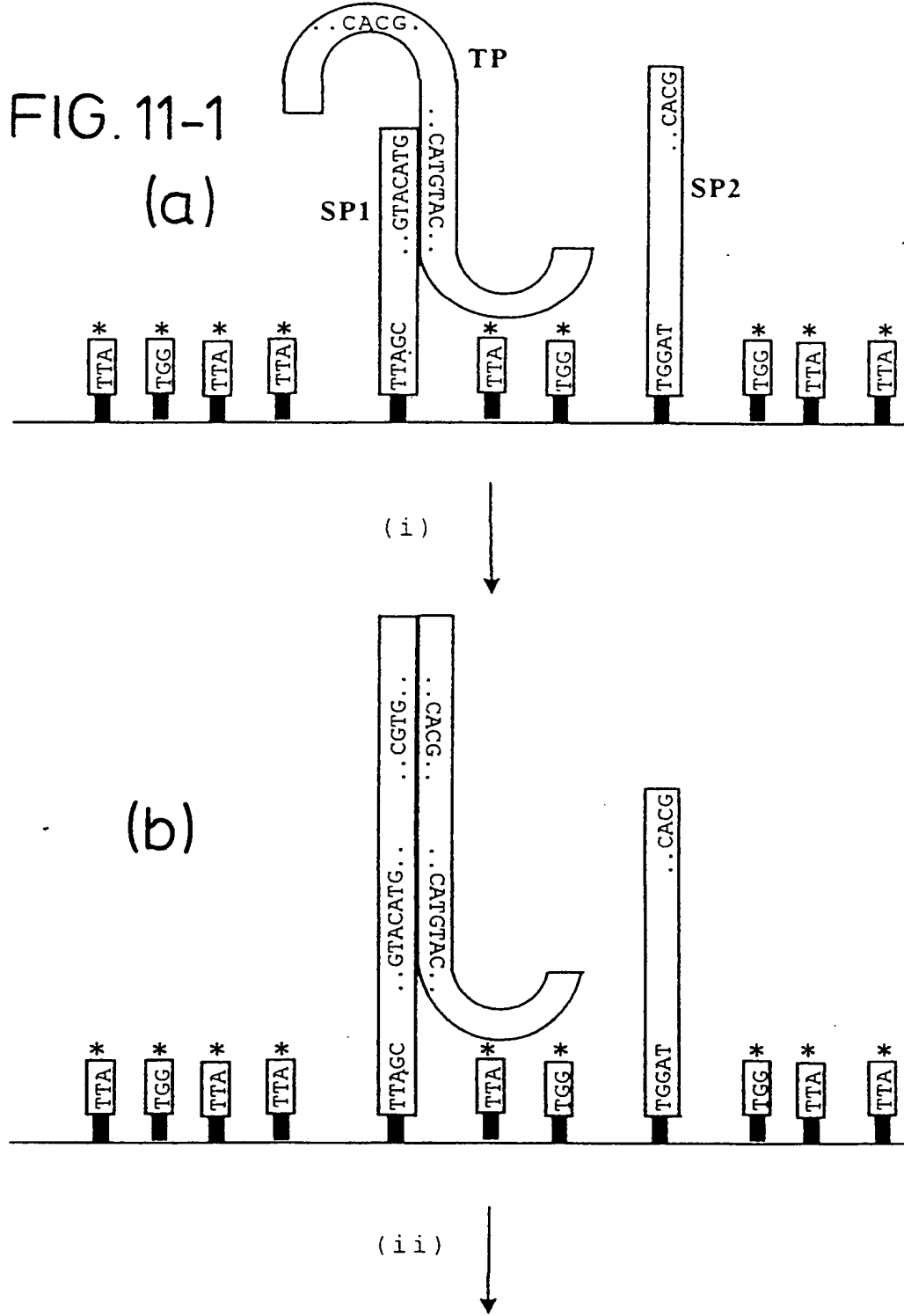


(v) ↓

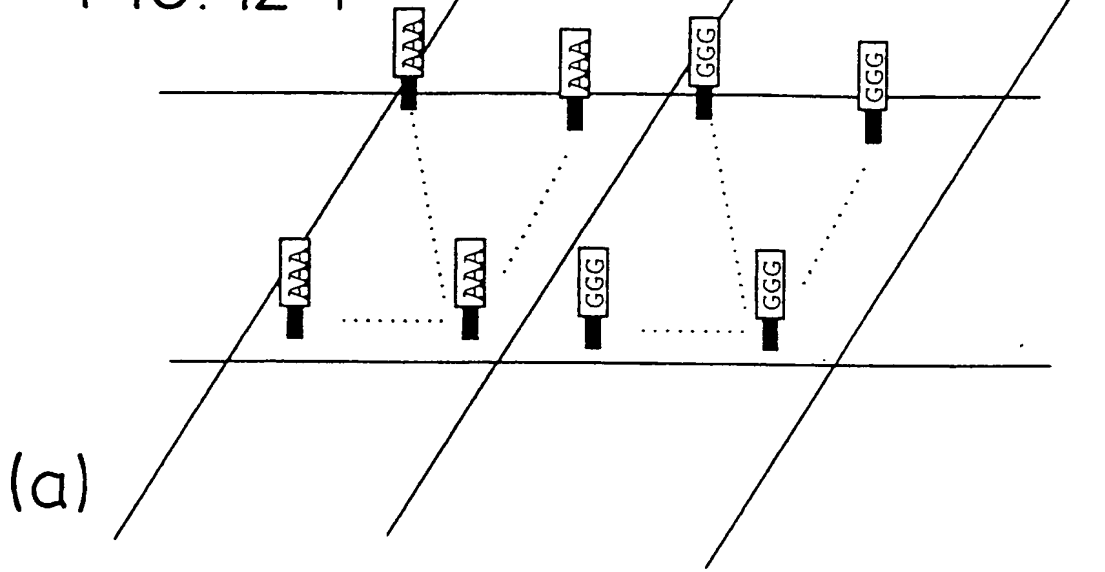
(h)



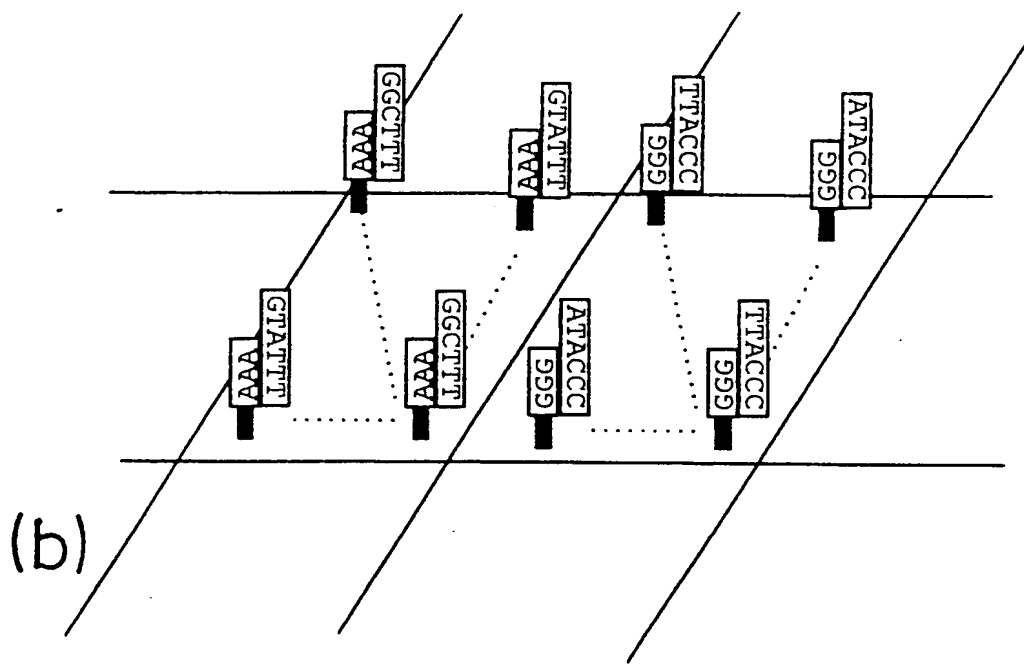
66660 2323760



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FIG. 12-1



(i) ↓



(ii) ↓

09/402277, 09/402277

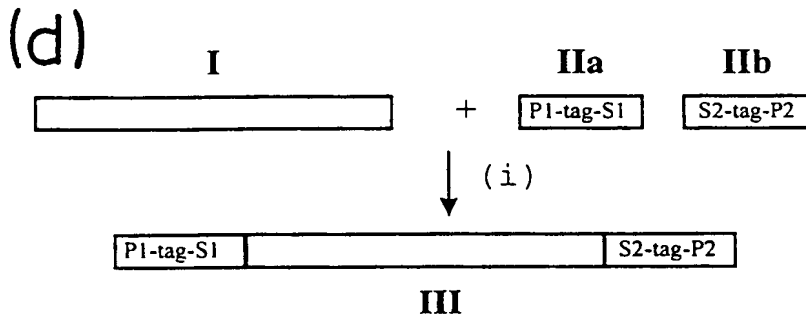
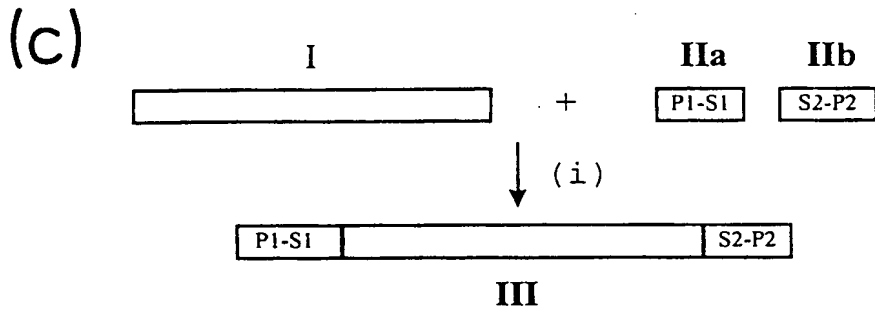
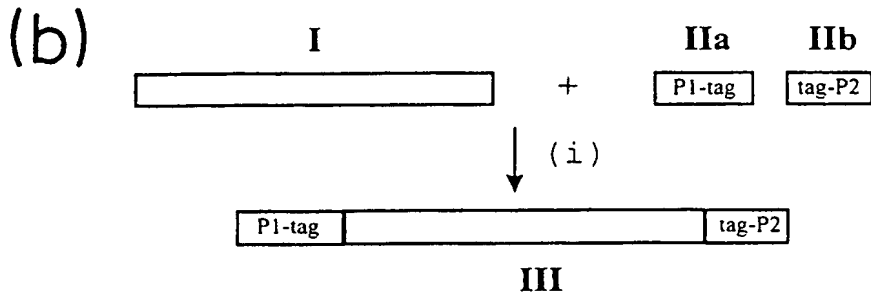
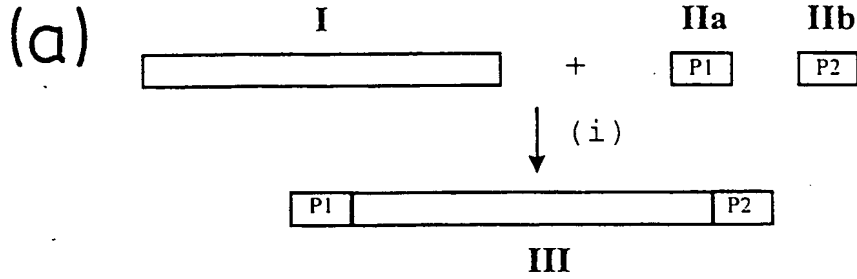


FIG. 13

60660 60660 60660

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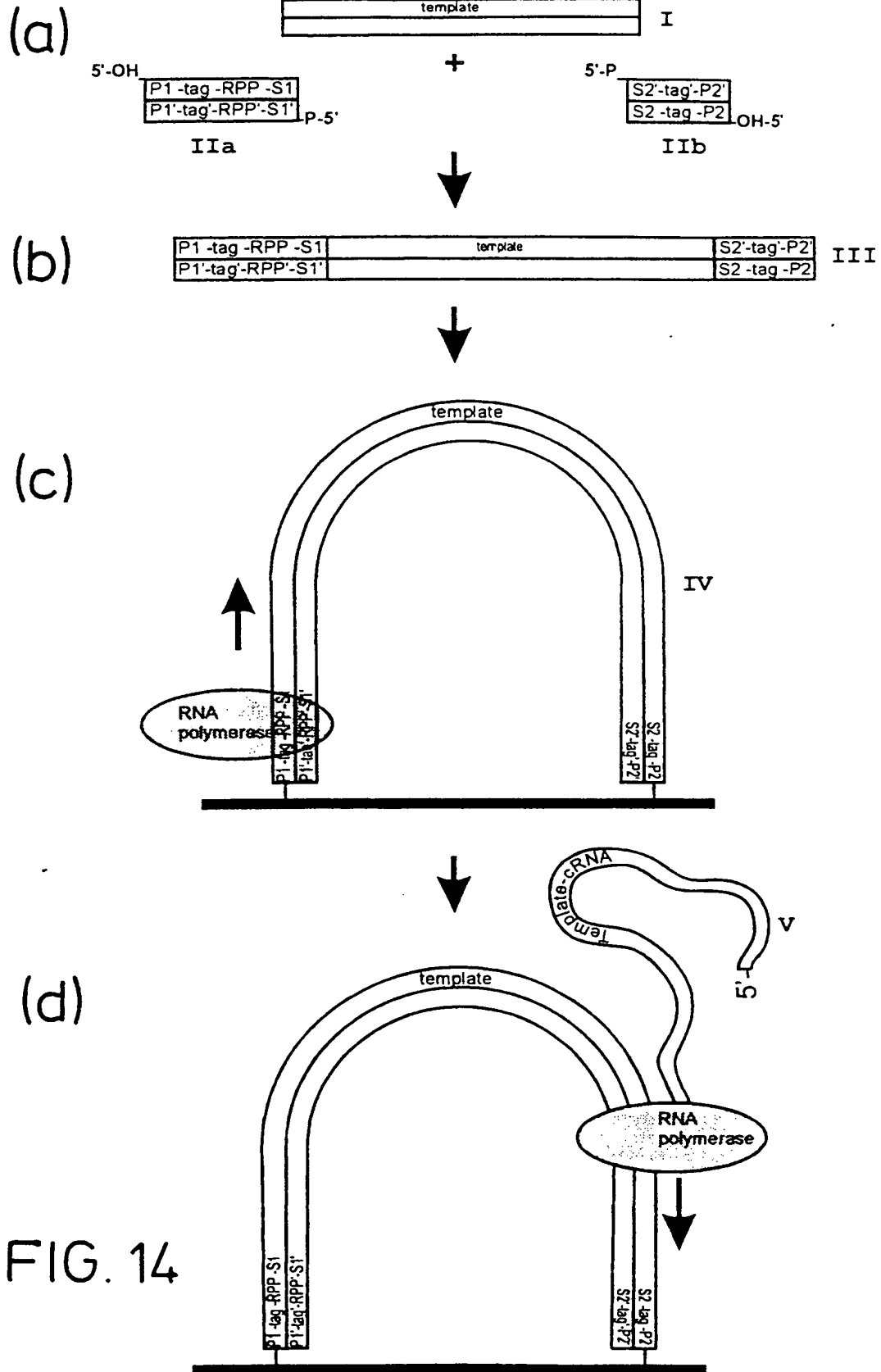
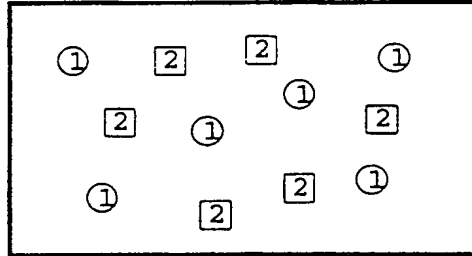


FIG. 14

66660 222266

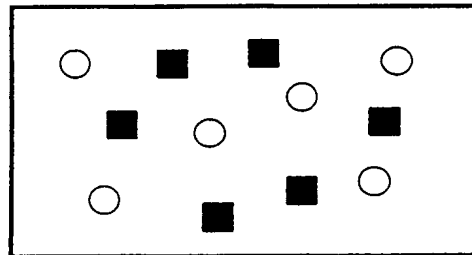
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FIG. 15
in situ Sequencing

(a)

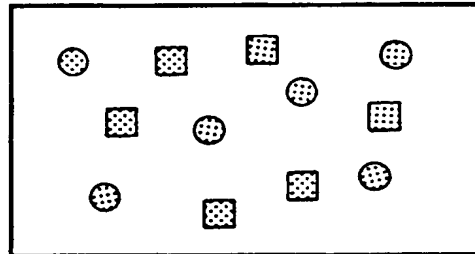


Two types of randomly arrayed DNA colonies

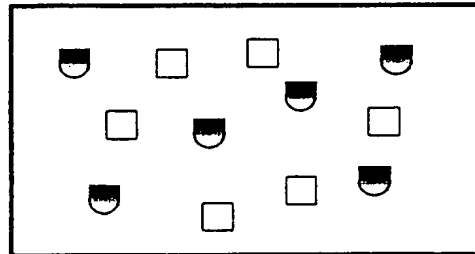
(b) step 1
add dGTP



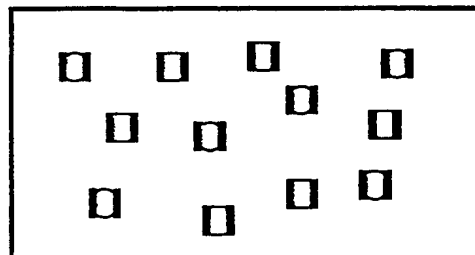
(c) step 2
add dATP



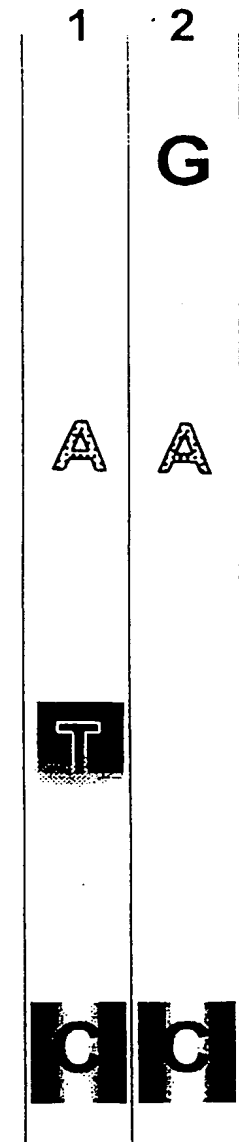
(d) step 3
add dTTP



(e) step 4
add dCTP



f)



DNA sequence:
type 1: ATC
type 2: GAC

66660" 222260

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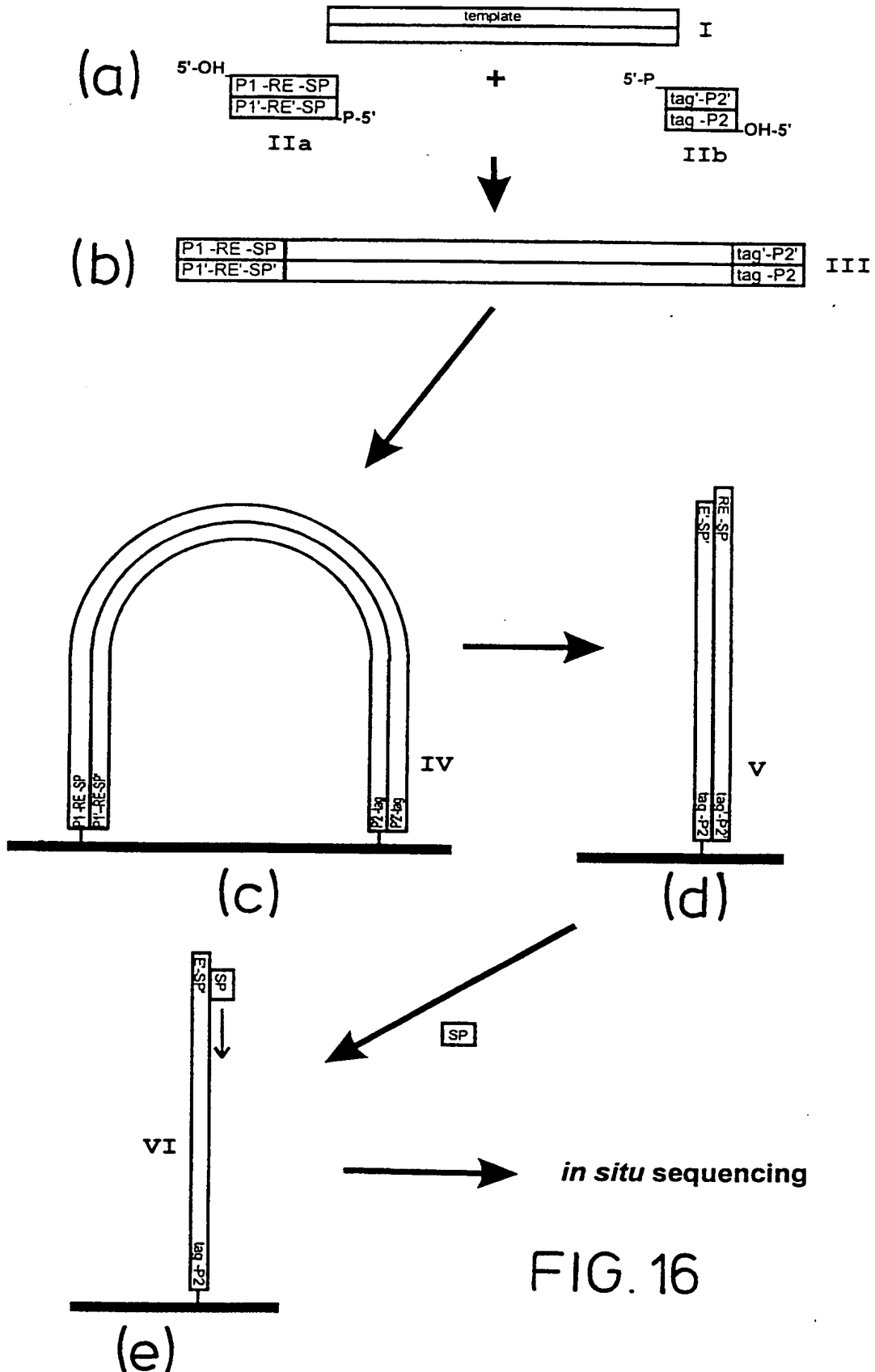
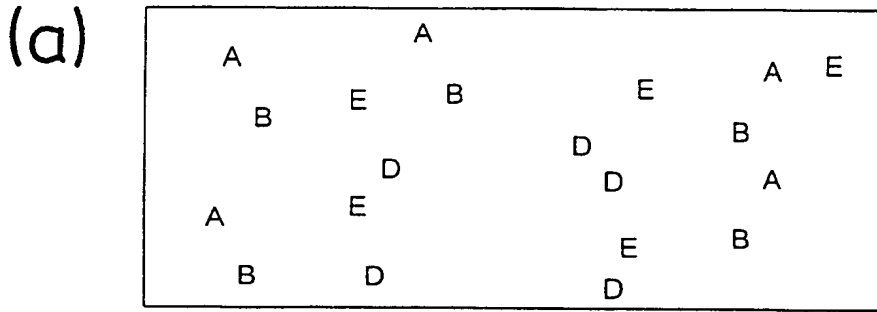
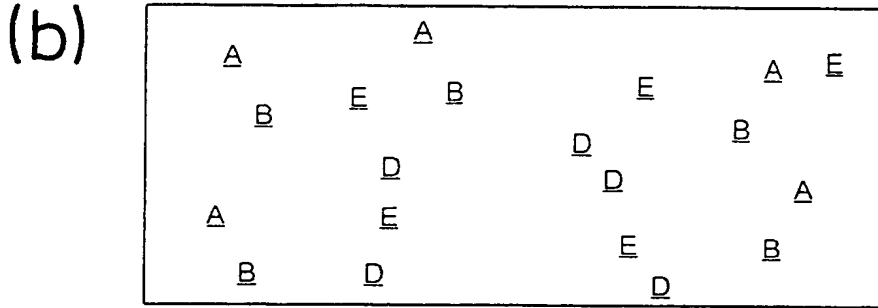


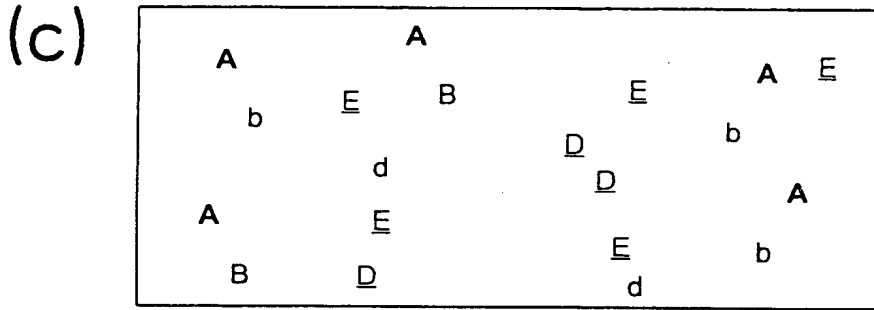
FIG. 16



↓ (i)



↓ (ii)



↓ (iii)

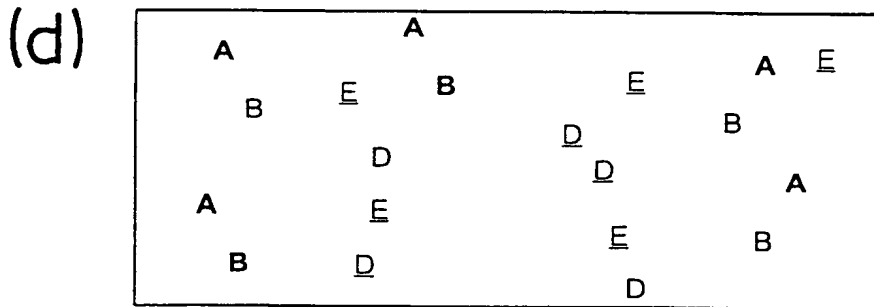
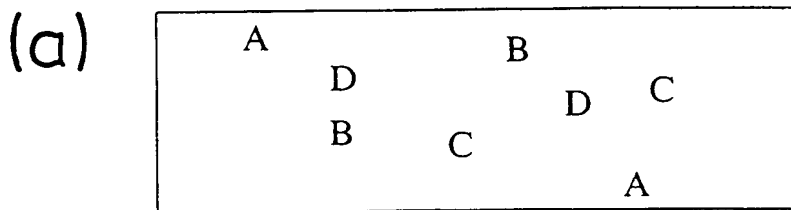
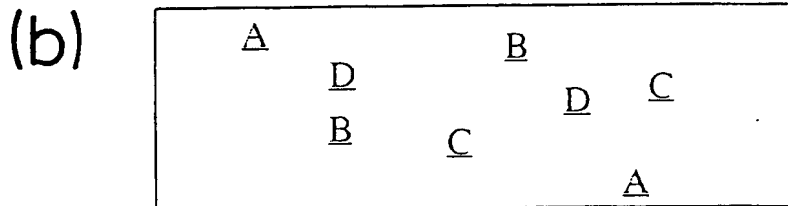


FIG. 17

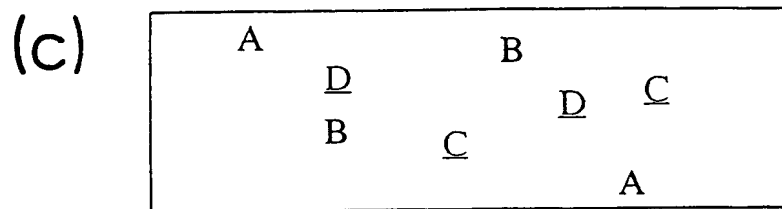
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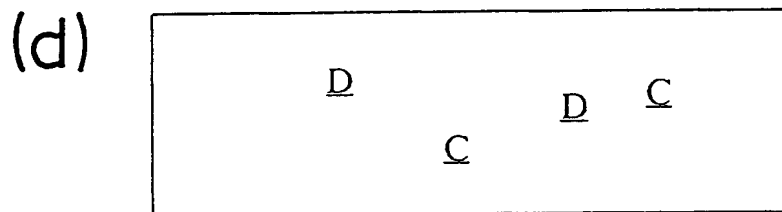
↓ (i)



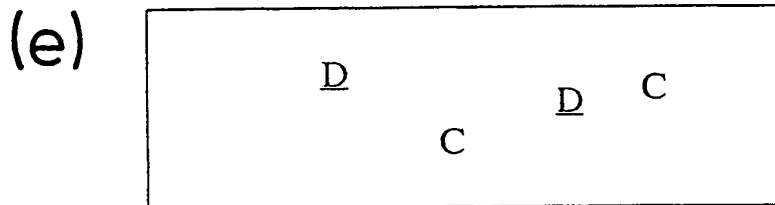
$mA + mB$ ↓ (ii)



R.E. ↓ (iii)



$mA +$ ↓ (iv)



P1 + ↓ (v)



FIG. 18

66060" 222222

66660 222266

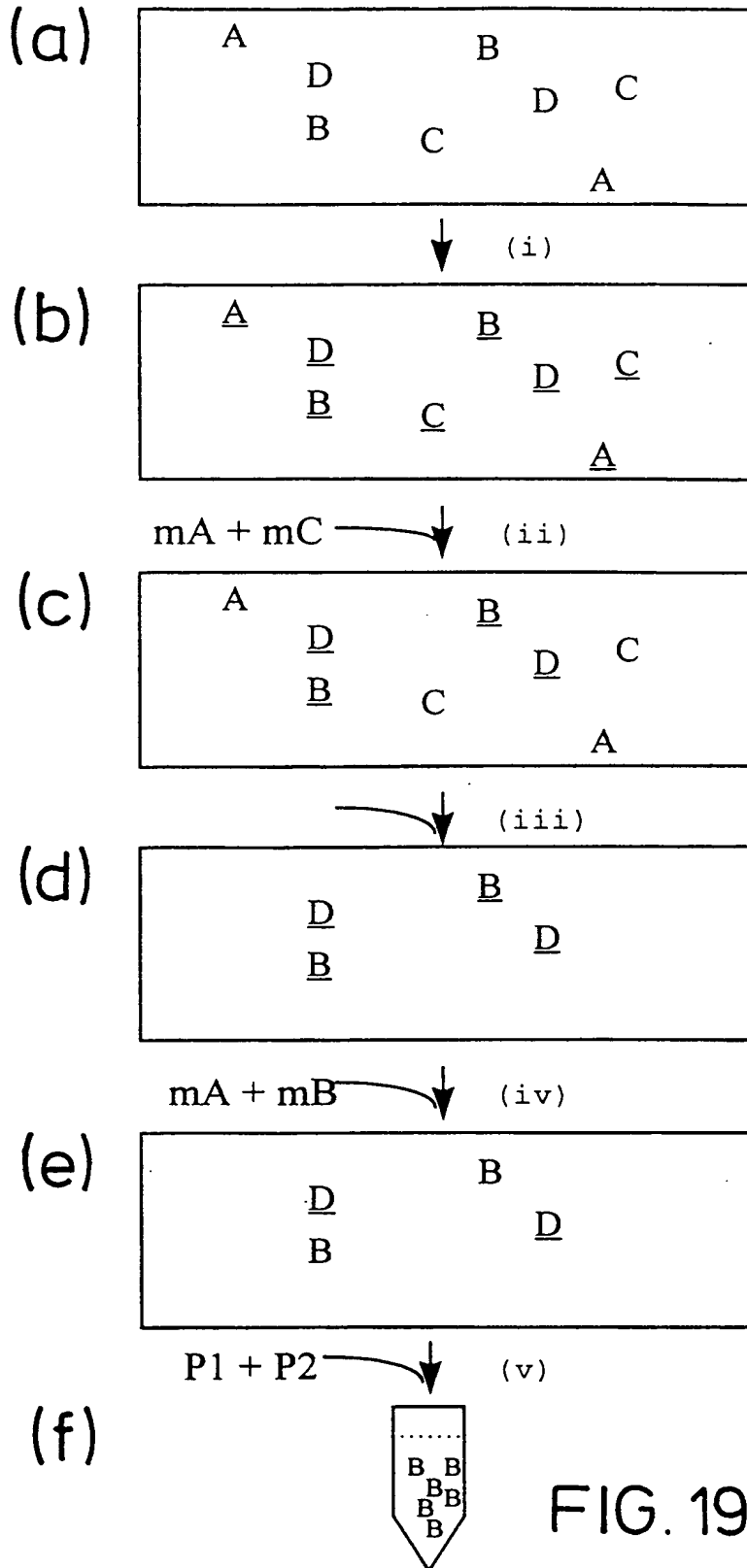
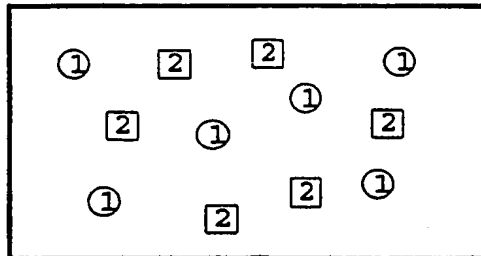


FIG. 19

FIG. 17
in situ Sequencing

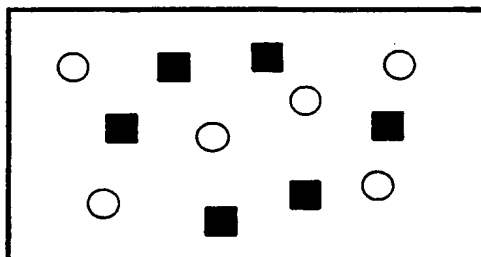
(a)



Two types of randomly arrayed DNA colonies

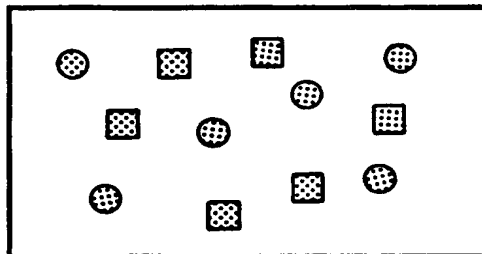
(b)

step 1
add dGTP



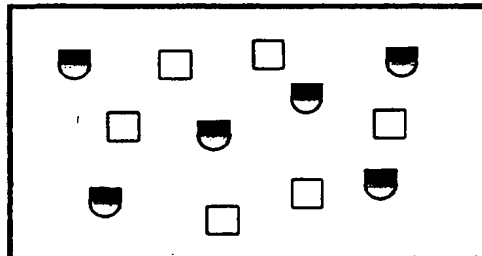
(c)

step 2
add dATP



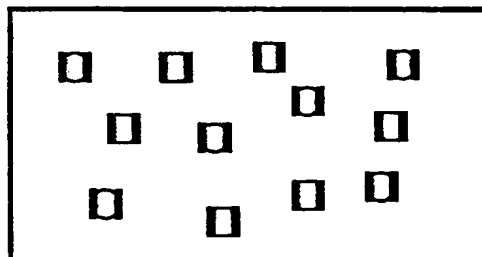
(d)

step 3
add dTTP

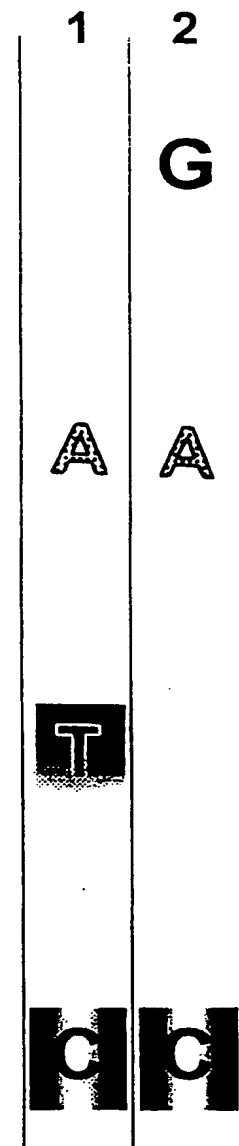


(e)

step 4
add dCTP



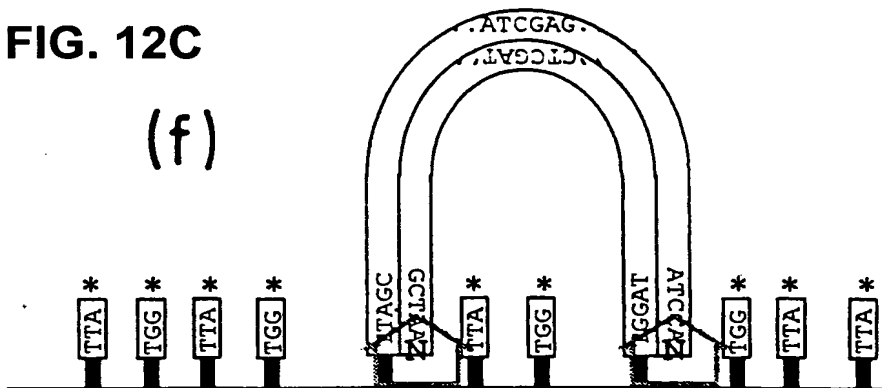
f)



DNA sequence:
type 1: ATC
type 2: GAC

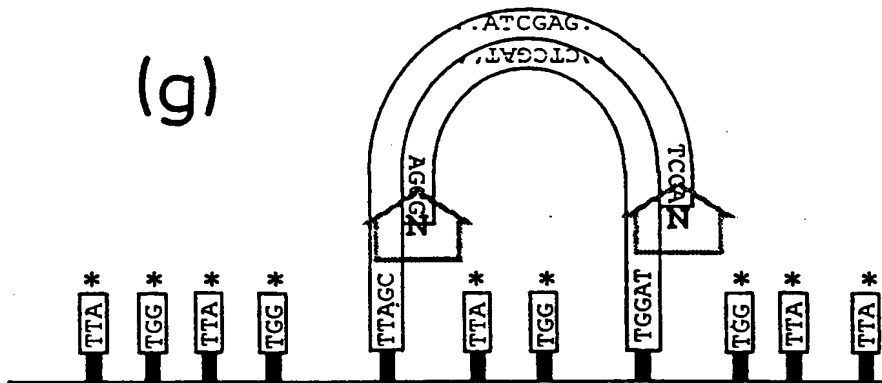
FIG. 12C

(f)



(iv)

(g)



(v)

(h)

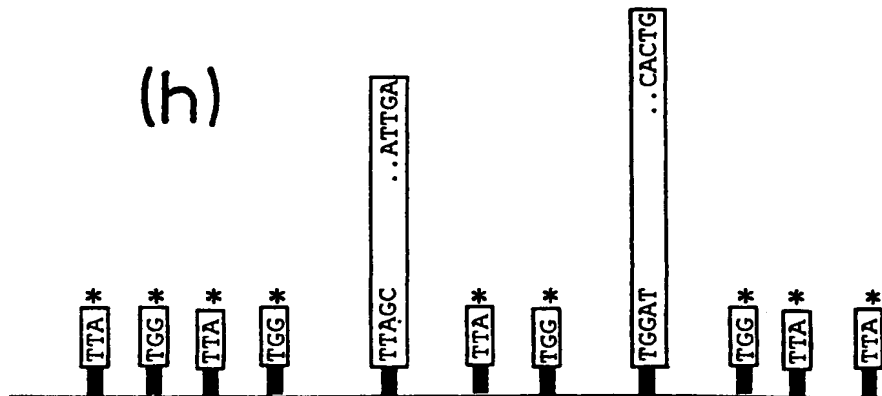
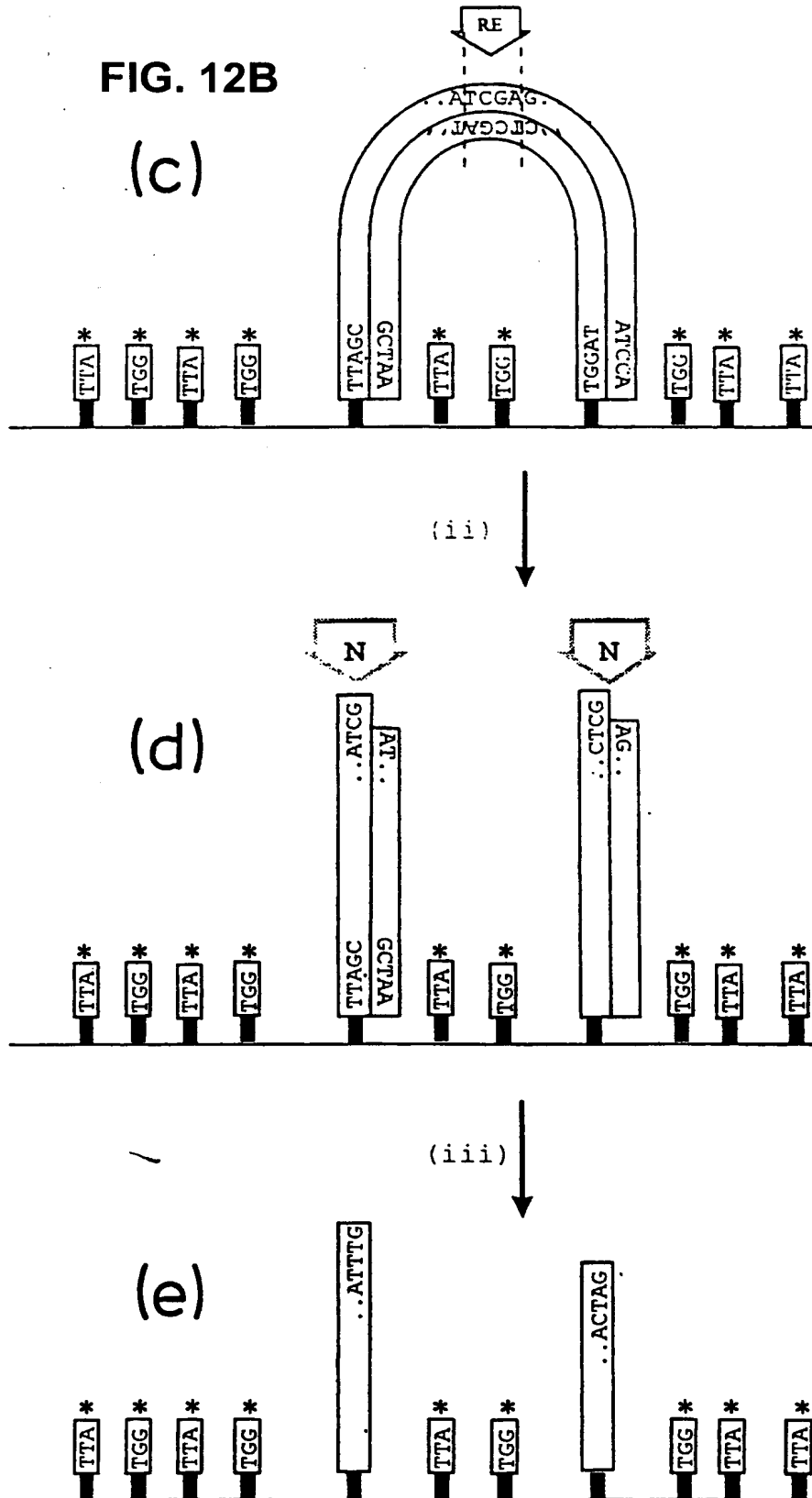
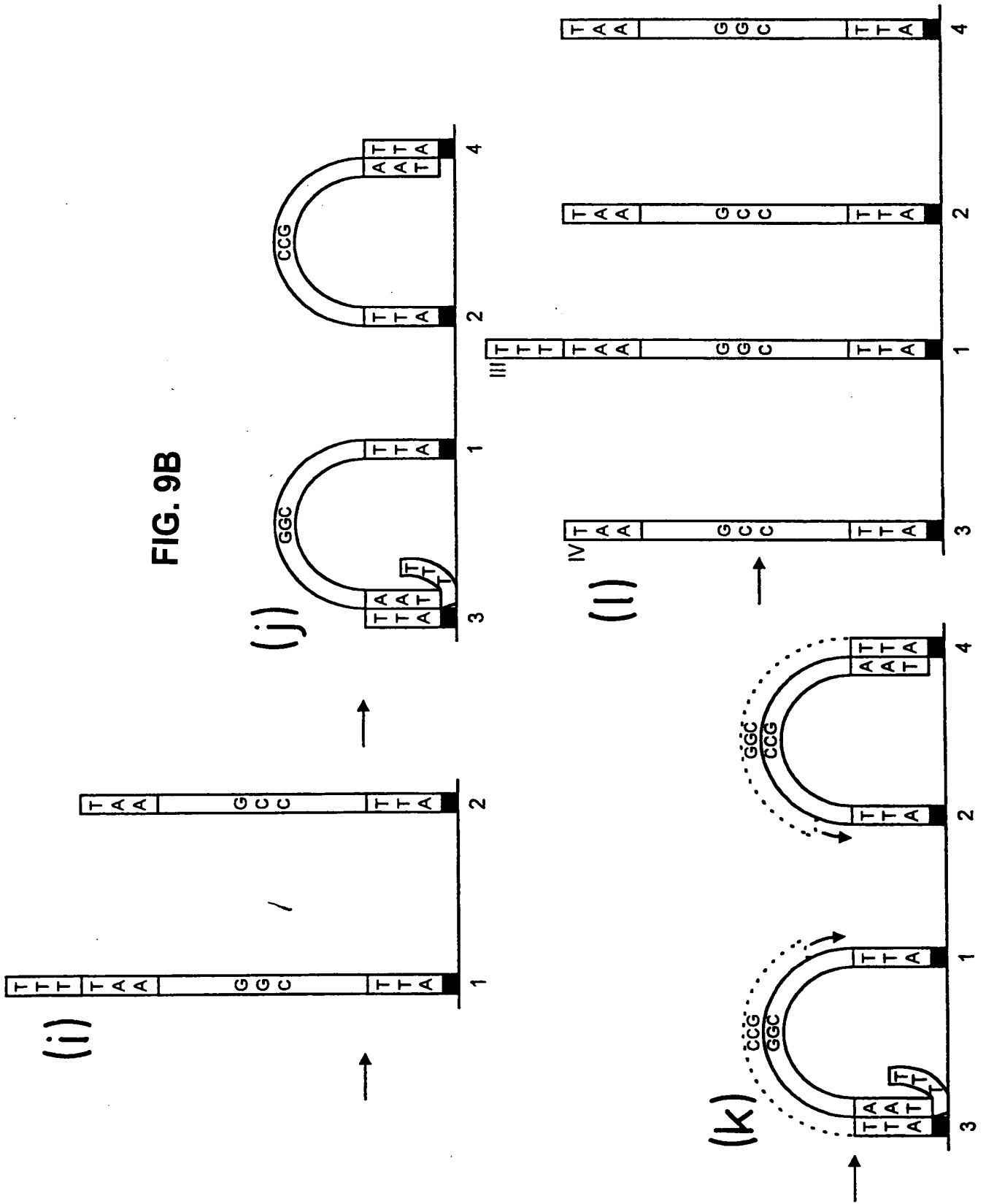


FIG. 12B



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FIG. 9B



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FIG. 6B

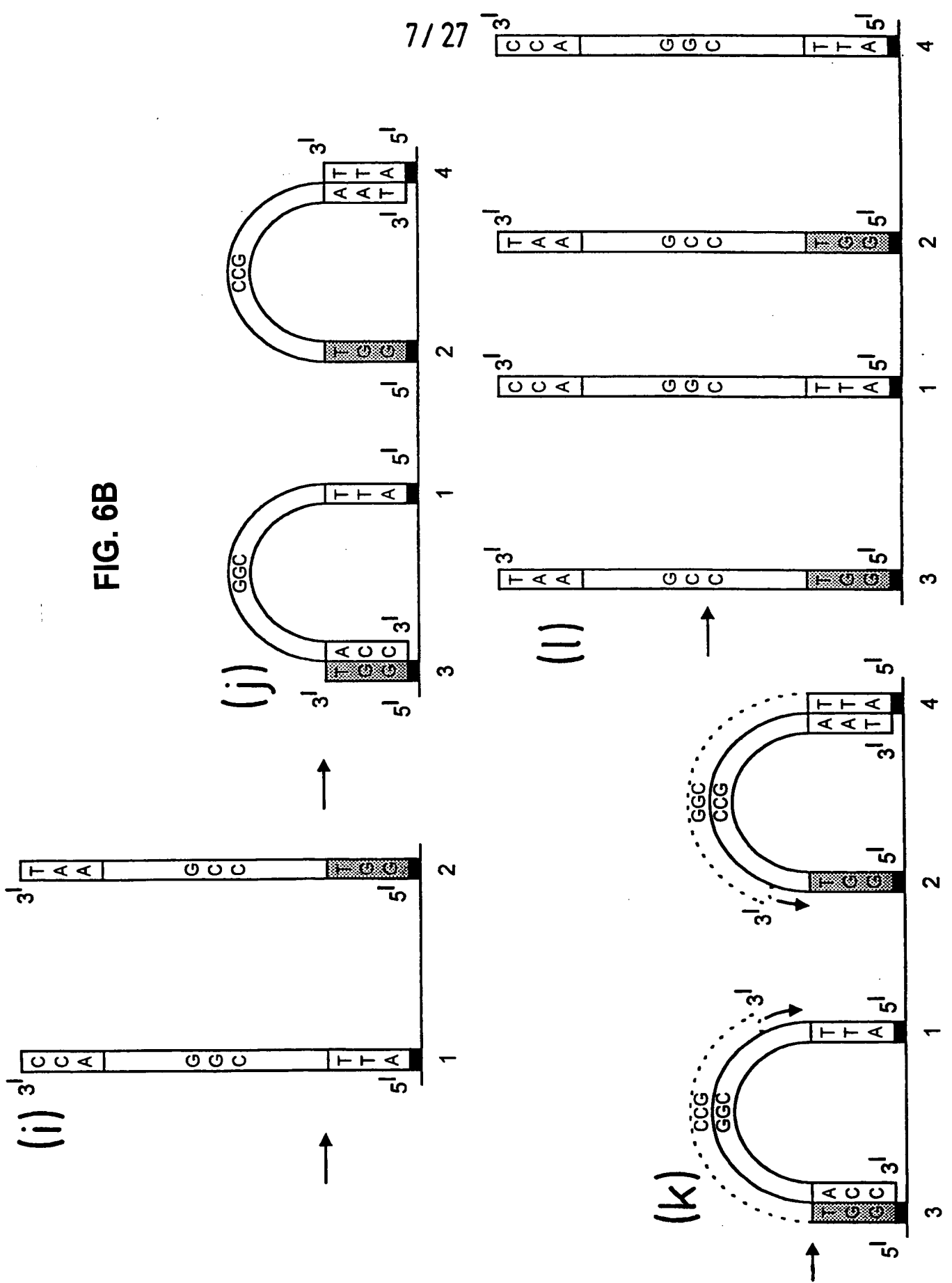
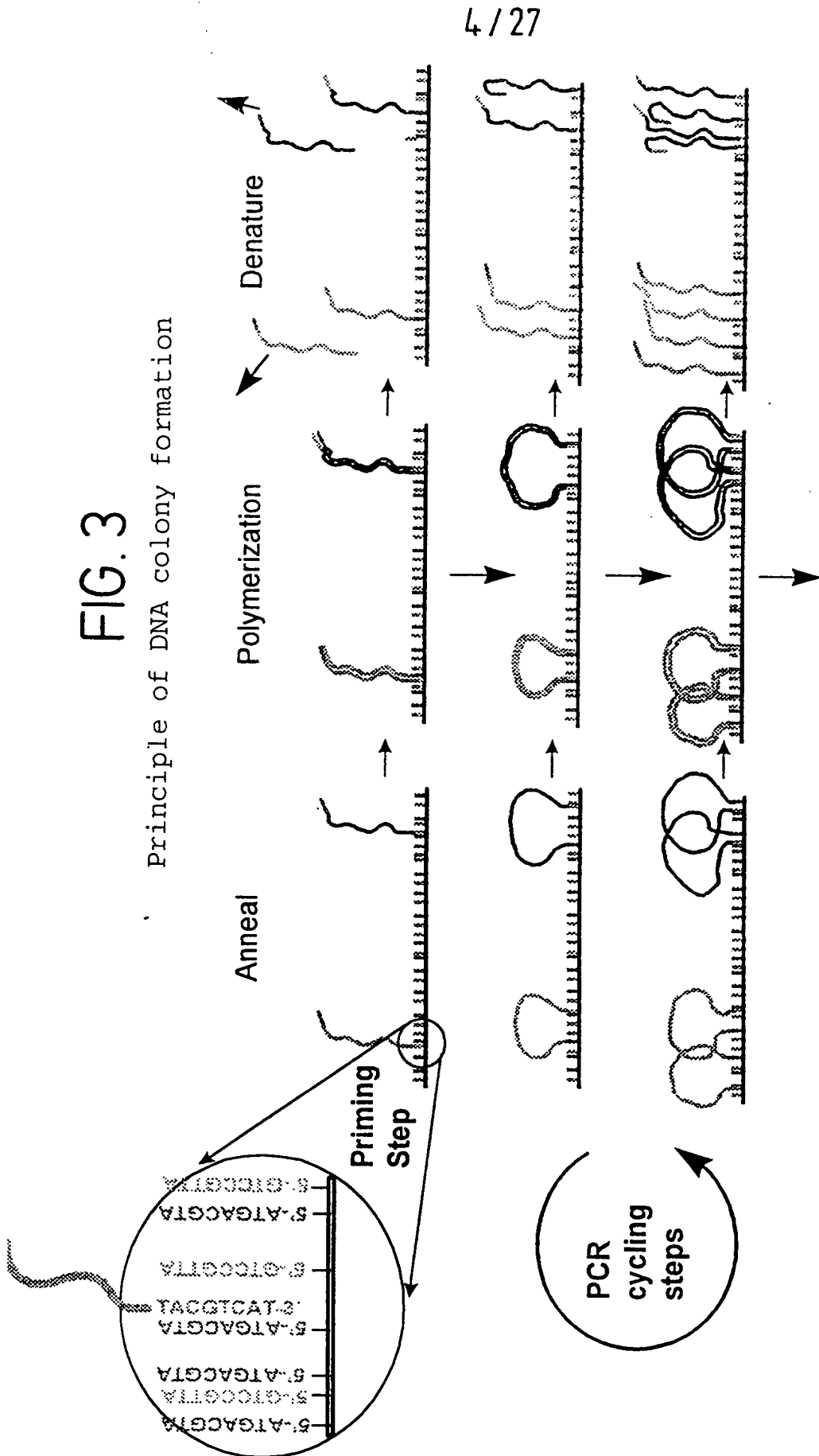


FIG. 3

Principle of DNA colony formation



Characteristics of DNA Colonies

- 1) Each colony is composed of identical copies (10,000 to 100,000) of the original DNA template
- 2) Colonies are 0.1 - 5 mm in size and are spaced between 5 - 50 mm apart
- 3) $\sim 10^6 - 10^7$ individual colonies / cm^2

